

## **Commodity Movements**

# Commodity Flow Survey

## Abstract

The Commodity Flow Survey (CFS) provides data on the movement of freight by type of commodity shipped and by mode of transport. The CFS is a continuation of statistics collected in the Commodity Transportation Survey from 1963 through 1977, and includes major improvements in methodology, sample size and scope. The Bureau of the Census used a sample of 200,000 domestic establishments randomly selected from a universe of about 800,000 in manufacturing, mining, wholesale, and some selected activities in retail and service. Each selected establishment reported a sample of shipments for a two-week period in each of the four calendar quarters of 1993. This produced a total sample of about 12 million shipments. For each sampled shipment, respondents reported domestic origin and destination, Standard Transportation Commodity Classification (STCC) code, weight, value, and modes of transport. Respondents also provided information on whether the commodity was shipped in a container, a hazardous material, or an export.

## Source of Data

A sample of manufacturing, mining, wholesale, auxiliary warehouses, and selected retail and service establishments completed a questionnaire.

## Attributes

Geographic Coverage of Data: U.S. totals, state, 89 National Transportation Analysis Regions (combination of Bureau of Economic Analysis Economic Areas)

First Developed: 1993

Update Frequency: Quinquennial (next planned survey year is 1997)

File Format: Aggregate data only will be released

Media: CD-ROM, Printed source, Internet

## Significant Features/Limitations

The 1993 CFS differs from previous surveys in expanded coverage of intermodal transportation, additional industry coverage, and more detailed geographic levels. Earlier surveys reported only the principal mode. The 1993 survey asked for all modes used for the shipment (for-hire truck, private truck, rail, water, pipeline, air, parcel delivery or U.S. Postal Service, other mode, unknown). The 1993 CFS produces data at the U.S., state, and National Transportation Analysis Region (NTAR) levels. There are 89 NTARs, comprised of BEA Economic Areas covering the United States.

The 1993 CFS does not cover shipments of crude petroleum and imports, which primarily affect water transportation and pipelines. Oak Ridge National Laboratory has estimated commodity flows for these two categories. Also, the Survey does not cover establishments classified in the Standard Industrial Classification as farms, forestry, fisheries, oil and gas extraction, governments, construction, transportation, households, foreign establishments, and most retail and service businesses. Furthermore, the CFS does not cover data on shipments originating in Puerto Rico and other U.S. territories and possessions. Commodities that are shipped from a foreign location to another foreign destination, through the United States (e.g., from Canada to Mexico) are also excluded from the Survey.

## **Corresponding Print Source**

1993 Commodity Flow Survey: U. S. Preliminary Report (by Census Bureau)

1993 Commodity Flow Survey: Area Reports for 50 States (by Census Bureau)

1993 Commodity Flow Survey: Preliminary Observations (by the Bureau of Transportation Statistics)

1993 Commodity Flow Survey: State Summaries (by the Bureau of Transportation Statistics)

## **Sponsoring Organization**

U.S. Department of Transportation, Bureau of Transportation Statistics; and the U.S. Department of Commerce, Bureau of the Census

## **Performing Organization**

Department of Commerce, Bureau of the Census; and Oak Ridge National Laboratory

## **Availability**

CD-ROM and Printed Sources: Bureau of the Census, Commodity Flow Survey Branch, Services Division, Washington, DC 20233; (301) 457-2805.

CD-ROM and Printed Sources: DOT/Bureau of Transportation Statistics, 400 7th Street, SW, Room 3430, Washington, DC 20590; (202) 366-3282; Fax: (202) 366-3640.

Internet: [www.bts.gov](http://www.bts.gov).

## **Contact for Additional Information**

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## Commodity Movements Originating in Massachusetts Summary of 1993 CFS

In Massachusetts, the CFS measured \$112 billion of goods shipments weighing 73 million tons. Massachusetts accounted for approximately 2 percent of the value and 1 percent of the weight of total U.S. shipments. The CFS data cover shipments by establishments in mining, manufacturing, wholesale, and selected retail and service industries. The data exclude most shipments of crude oil; therefore, the totals and percentages do not fully reflect the contribution of pipeline shipments.

The major commodities shipped by establishments vary when measured by value and weight. The main commodities shipped from Massachusetts by value were: electrical machinery, equipment, or supplies; food or kindred products; chemicals or allied products; machinery, including computers; and instruments, photographic goods, optical goods, or clocks. The main commodities shipped by weight were: nonmetallic minerals; petroleum or coal products; food or kindred products; clay, concrete, glass, or stone products; and pulp, paper, or allied products.

Local transportation of freight is important to Massachusetts's commerce. The CFS shows that in 1993, about 34 percent of the value and 72 percent of the weight of total shipments from Massachusetts were shipped to destinations within the state. Approximately 35 percent of

the weight and 77 percent of the weight of all shipments were between places less than 50 miles apart. In comparison, about 30 percent of the value and 56 percent of the weight of total U.S. shipments were between places less than 50 miles apart. In Massachusetts, about 43 percent of the value of shipments and 85 percent of the weight of shipments were between places less than 100 miles apart.

About 66 percent of the value and 28 percent of the weight of all shipments from Massachusetts went to other states. Some of the most important destination states by value were: New York, Connecticut, California, New Jersey, and Pennsylvania. Important destination states by weight were: Rhode Island, New Hampshire, New York, Connecticut, and Pennsylvania.

Most commodities were moved by truck, approximately 72 percent of the value and 96 percent of the weight. Air was used to transport about 4 percent of the value of shipments. The CFS data confirm the rising importance of parcel, U.S. postal, and courier services that have emerged in recent years. In 1993, this mode of transport was used to ship 536,000 tons of goods worth about \$22 billion or 19 percent of the value of all shipments in Massachusetts. In comparison, about 9 percent of the value of total U.S. shipments were moved by this mode.

1993 Commodity Flow Survey State Summary: Massachusetts  
Tabulation by the Bureau of Transportation Statistics, U.S. Department of Transportation

Summary	Value	Weight
Total shipments originating in Massachusetts	\$111.7 billion	73.1 million tons
Percent of total U.S. shipments (preliminary U.S. estimate)	1.9	0.7

Commodity Shipments Originating in Massachusetts Ranked by Value		Commodity Shipments Originating in Massachusetts Ranked by Weight	
Commodity	Percent of value	Commodity	Percent of weight
Electrical machinery, equipment, or supplies .....	12.5	Nonmetallic minerals .....	35.2
Food or kindred products .....	11.0	Petroleum or coal products .....	20.0
Chemicals or allied products .....	8.4	Food or kindred products .....	13.0
Machinery, including computers .....	8.1	Clay, concrete, glass, or stone products .....	6.5
Instruments, photographic good, optical, or clocks .....	7.7	Pulp, paper, or allied products .....	4.6
Other commodities .....	52.3	Other commodities .....	20.8
Total .....	100.0	Total .....	100.0

Domestic Destinations of Shipments Originating in Massachusetts Ranked by Value		Domestic Destinations of Shipments Originating in Massachusetts Ranked by Weight	
State	Percent of value	State	Percent of weight
Massachusetts .....	33.5	Massachusetts .....	71.7
New York .....	6.9	Rhode Island .....	6.7
Connecticut .....	5.7	New Hampshire .....	3.8
California .....	5.4	New York .....	3.0
New Jersey .....	4.0	Connecticut .....	3.0
Pennsylvania .....	3.9	Pennsylvania .....	1.3
Other States .....	40.6	Other States .....	10.5
Total .....	100.0	Total .....	100.0

Modes of Transportation for Shipments Originating in Massachusetts		
Modes	Percent of value	Percent of weight
Parcel, U.S. Postal Service, or courier service .....	19.2	0.7
Truck (for-hire, private, and both private truck and for-hire truck) .....	72.0	95.6
Air (including truck and air) .....	3.6	-
Rail .....	0.3	0.8
Water (inland water, Great Lakes, deep sea, truck and water, and rail and water) .....	-	-
Pipeline* .....	-	-
Truck and rail intermodal combination .....	-	-
Other intermodal (truck and pipeline, inland and Gt. Lakes, inland and deep sea) .....	-	-
Other, unknown, and withheld for sampling and disclosure reasons .....	4.9	2.9
Total .....	100.0	100.0

Domestic Distance Shipped for Commodities Originating in Massachusetts		
Distance	Percent of value	Percent of weight
Less than 50 miles .....	34.5	77.2
50 to 99 miles .....	8.7	8.0
100 to 249 miles .....	14.5	6.6
250 to 499 miles .....	9.1	2.9
500 to 749 miles .....	7.2	1.3
750 to 999 miles .....	7.2	1.5
1,000 to 1,499 miles .....	7.0	1.3
1,500 to 1,999 miles .....	3.2	0.4
2,000 miles or more .....	8.5	0.9
Total .....	100.0	100.0

\* CFS data for pipelines exclude most shipments of crude oil.

\*\* Some or all data suppressed to avoid disclosure or because data are statistically unreliable.

- Represents zero or less than 1 unit of measurement.

NOTE: Data are estimates based on a sample and subject to error. See Appendix B, "Reliability of the Data," in source document.

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1992 Census of Transportation, Communications, and Utilities, 1993 Commodity Flow Survey, TC92-CF (Washington, DC: 1996).

**90-Percent Confidence Intervals for 1993 Commodity Flow Survey State Summary: Massachusetts**  
 Tabulation by the Bureau of Transportation Statistics, U.S. Department of Transportation

	Value	Weight
<b>Summary</b>		
Total shipments originating in Massachusetts (in billion \$ and million tons)	107.84 - 115.56	59.87 - 86.33
Percent of total U.S. shipments (preliminary U.S. estimate)	1.77 - 1.93	0.60 - 0.88

Commodity Shipments Originating in Massachusetts Ranked by Value		Commodity Shipments Originating in Massachusetts Ranked by Weight	
Commodity	Percent of value	Commodity	Percent of weight
Electrical machinery, equipment, or supplies .....	10.7 - 14.3	Nonmetallic minerals .....	15.9 - 54.4
Food or kindred products .....	8.7 - 13.2	Petroleum or coal products .....	11.2 - 28.7
Chemicals or allied products .....	7.0 - 9.7	Food or kindred products .....	9.4 - 16.7
Machinery, including computers .....	7.0 - 9.2	Clay, concrete, glass, or stone products .....	4.4 - 8.7
Instruments, photographic good, optical, or clocks .....	6.1 - 9.3	Pulp, paper, or allied products .....	3.5 - 5.7
Other commodities .....	(NA)	Other commodities .....	(NA)
Total .....	(X)	Total .....	(X)

Domestic Destinations of Shipments Originating in Massachusetts Ranked by Value		Domestic Destinations of Shipments Originating in Massachusetts Ranked by Weight	
State	Percent of value	State	Percent of weight
Massachusetts .....	31.5 - 35.5	Massachusetts .....	67.8 - 75.7
New York .....	5.9 - 7.9	Rhode Island .....	3.7 - 9.7
Connecticut .....	4.6 - 6.9	New Hampshire .....	2.5 - 5.1
California .....	4.9 - 5.9	New York .....	2.3 - 3.7
New Jersey .....	3.2 - 4.8	Connecticut .....	2.5 - 3.5
Pennsylvania .....	3.1 - 4.7	Pennsylvania .....	0.8 - 1.8
Other States .....	(NA)	Other States .....	(NA)
Total .....	(X)	Total .....	(X)

Modes of Transportation for Shipments Originating in Massachusetts		
Modes	Percent of value	Percent of weight
Parcel, U.S. Postal Service, or courier service .....	17.4 - 21.0	0.5 - 0.9
Truck (for-hire, private, and both private truck and for-hire truck) .....	69.0 - 75.1	90.9 - 100.3
Air (including truck and air) .....	2.6 - 4.6	(X)
Rail .....	0.1 - 0.5	0.3 - 1.3
Water (inland water, Great Lakes, deep sea, truck and water, and rail and water) ..	(X)	(X)
Pipeline* .....	(X)	(X)
Truck and rail intermodal combination .....	(X)	(X)
Other intermodal (truck and pipeline, inland and Gt. Lakes, inland and deep sea) ..	(X)	(X)
Other, unknown, and withheld for sampling and disclosure reasons .....	3.8 - 6.1	1.8 - 4.1
Total .....	(X)	(X)

Domestic Distance Shipped for Commodities Originating in Massachusetts		
Distance	Percent of value	Percent of weight
Less than 50 miles .....	32.5 - 36.5	73.3 - 81.2
50 to 99 miles .....	7.7 - 9.7	6.5 - 9.5
100 to 249 miles .....	13.2 - 15.8	5.3 - 7.9
250 to 499 miles .....	7.0 - 11.2	2.1 - 3.7
500 to 749 miles .....	6.2 - 8.2	0.8 - 1.8
750 to 999 miles .....	6.7 - 7.7	1.2 - 1.8
1,000 to 1,499 miles .....	6.0 - 8.0	0.6 - 2.0
1,500 to 1,999 miles .....	2.7 - 3.7	0.2 - 0.6
2,000 miles or more .....	7.5 - 9.5	0.6 - 1.2
Total .....	(X)	(X)

\* CFS data for pipelines exclude most shipments of crude oil.

NA Not available.

X Not applicable.

NOTE: For explanation of 90-percent confidence intervals see Appendix B, "Reliability of the Data," in source document.

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1992 Census of Transportation, Communications, and Utilities, 1993 Commodity Flow Survey, TC92-CF (Washington, DC: 1996).

**1993 Commodity Flow Survey**  
**Out-of-State Shipments as Percent of State's Total Shipments**

State	Percent of value	Percent of weight
Alabama .....	66.2	28.8
Alaska .....	19.2	17.4
Arizona .....	57.3	23.0
Arkansas .....	73.7	41.0
California .....	38.8	8.8
Colorado .....	57.6	23.8
Connecticut .....	79.2	23.0
Delaware .....	85.2	72.2
Florida .....	36.8	18.2
Georgia .....	66.8	28.3
Hawaii .....	7.4	10.8
Idaho .....	68.2	35.5
Illinois .....	66.0	42.6
Indiana .....	71.6	43.9
Iowa .....	64.9	39.6
Kansas .....	74.7	46.2
Kentucky .....	75.6	51.0
Louisiana .....	50.7	33.6
Maine .....	65.5	27.2
Maryland .....	69.0	43.4
<b>Massachusetts .....</b>	<b>66.5</b>	<b>28.3</b>
Michigan .....	52.1	26.1
Minnesota .....	60.0	41.3
Mississippi .....	71.3	43.9
Missouri .....	73.5	36.6
Montana .....	47.0	57.8
Nebraska .....	70.9	51.0
Nevada .....	74.1	19.0
New Hampshire .....	77.8	**
New Jersey .....	68.7	40.6
New Mexico .....	51.7	40.3
New York .....	58.8	23.8
North Carolina .....	61.9	30.4
North Dakota .....	62.5	43.9
Ohio .....	62.5	30.0
Oklahoma .....	65.5	45.1
Oregon .....	58.5	19.8
Pennsylvania .....	64.7	38.1
Rhode Island .....	79.1	45.8
South Carolina .....	69.5	36.5
South Dakota .....	60.0	44.9
Tennessee .....	74.4	39.2
Texas .....	40.0	16.3
Utah .....	63.8	19.2
Vermont .....	65.8	31.9
Virginia .....	63.5	28.4
Washington .....	44.2	16.2
West Virginia .....	74.6	63.7
Wisconsin .....	64.9	30.5
Wyoming .....	70.8	84.3

\*\* Some or all data suppressed to avoid disclosure or because data are statistically unreliable.  
SOURCE: U.S. Department of Commerce, Bureau of the Census, *1992 Census of Transportation, Communications, and Utilities, 1993 Commodity Flow Survey*, TC92-CF (Washington, DC: 1996).

**1993 Commodity Flow Survey**  
**Shipments to Massachusetts from Neighboring States**

<b>State of origin</b>	<b>Value (million dollars)</b>	<b>Weight (thousand tons)</b>	<b>Percent value of state's shipments*</b>	<b>Percent weight of state's shipments*</b>
Connecticut	6,926	2,229	9.7	5.0
New Hampshire	2,304	2,160	14.0	4.5
New York	8,511	3,777	3.2	1.7
Rhode Island	3,876	-	19.9	-
Vermont	549	402	6.4	3.3

\* Percentages are based on total shipments originating in neighboring states.

- Data do not meet publication standards.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *1992 Census of Transportation, Communications, and Utilities, 1993 Commodity Flow Survey*, TC92-CF, 1996 (Washington, DC: 1996).